MEMORANDUM **(LABORATORY DATA REPORT)**

EPA - General Parameters

In reply refer to: 10-LC94

To: Rick Wilkin

From: Lynda Callaway

Lab: General Parameters

Thru: Cindy Paul
Mark White
Kristie Hargrove

Date: 10/20/2010

Work Request: EPAGP216
Task No.: 23993

Copies: Rick Wilkin
Cindy Paul
Kristie Hargrove
Lynda Callaway
Steve Vandegrift

Sample Site/Project: Pavillion Groundwater
Date Collected: 10/5, 10/6, & 10/7/10
Date Received: 10/8/2010
Date Analyzed: 10/13/2010
No. Samples Analyzed: 9

Sample Set No.: 5763
Sample Matrix: Groundwater
Analysis Type: Chloride, sulfate & fluoride
Sample Preparation: Diluted as needed

Method(s) Used : RSKSOP-276, Rev. 3 - Determination of Major Anions in Aqueous Samples Using Capillary Electrophoresis With Indirect UV Detection and Empower 2 Software

Comments:

Quality control measures performed along with your samples included analysis of method blanks, sample matrix spikes, laboratory sample duplicates, calibration check standards, and second-source quality control samples as outlined in RSKSOP-276, revision 3. Method detection limits (MDLs) were determined on 10/1/2010. Note that a sample for anions was not received for field sample ID LD 02 dup.

EPA - General Parameters
Analytical Results Report

Laboratory: General Parameters

Work Request: EPAGP216

Analyst: Lynda Callaway

Report Date: 10/20/10

Sample Results

Analytes	Chloride (Cl^-)		Sulfate (SO_4^{-2})		Fluoride (F^-)	
Codes	16887-00-6		14808-79-8		7782-41-4	
Methods	RSKSOP-276/3		RSKSOP-276/3		RSKSOP-276/3	
Unit	mg/L		mg/L		mg/L	
MDL	* 0.136		* 0.103		* 0.056	
QL	* 1.00		* 1.00		* 0.200	

Field Sample ID	Lab Sample ID	Date Collected	Date Analyzed	Data	DF	Data	DF	Data	DF
RD 01	5763-1	10/5/2010	10/13/2010	15.2	1	357	21	0.992	1
EPAMW 01	5763-2	10/6/2010	10/13/2010	23.3	1	398	21	1.55	1
EPAMW 02	5763-3	10/6/2010	10/13/2010	466	21	12.1	1	1.01	1
LD 01	5763-4	10/6/2010	10/13/2010	33.0	4	1,320	50	0.898	4
LD 01	5763-4 Lab dup	10/6/2010	10/13/2010	32.9 (RPD=0.303)	4	1,310 (RPD=0.760)	50	0.926 (RPD=3.07)	4
LD 01 (Dup)	5763-5	10/6/2010	10/13/2010	32.9	4	1,320	50	0.988	4
RD 01 Field Blank	5763-6	10/5/2010	10/13/2010	ND	1	ND	1	ND	1
Trip Blank	5763-7	10/6/2010	10/13/2010	ND	1	ND	1	ND	1
EQ Blk	5763-8	10/7/2010	10/13/2010	ND	1	ND	1	ND	1
LD 02	5763-9	10/7/2010	10/13/2010	20.1	1	698	100	2.28	2
LD 02	5763-9 Lab dup	10/7/2010	10/13/2010	19.7 (RPD=2.01)	1	691 (RPD=1.01)	100	2.17 (RPD=4.94)	2
LD 02 dup	5763-10	10/7/2010	-	-	-	-	-	-	-

Comments:

The data quality objective for the precision of sample duplicates is a relative percent difference (RPD) of < 10%. This objective was met for all samples within the range of the calibration standards. MDLs were determined on 10/1/2010. * The MDLs and QLs should be raised by the same factor as the dilution factor for those samples that were diluted. Note that an anion sample was not received for field sample ID LD 02 dup.

Notes:

1. If the parameter was detected above the quantitation limit (**QL**), the numeric result is reported; **BQL** denotes that the parameter was not detected at or above the quantitation limit; **BQL ( )** denotes that the parameter was detected above the method detection limit (**MDL**) but below **QL** and the estimated numeric result is reported in parenthesis; **ND** denotes that the parameter was not detected at all. All the results are corrected with dilution factors (**DF**), if applicable. **NA** means not applicable.
2. **" -"** denotes that the information is not available or the analyte is not analyzed.

EPA - General Parameters
Analytical Results Report

Laboratory:	General Parameters
Work Request:	EPAGP216
Analyst:	Lynda Callaway
Report Date:	10/20/10

Quality Control Data Summary

			Analytes	Chloride (Cl^-)			Sulfate (SO_4^{-2})			Fluoride (F^-)		
			Codes	16887-00-6			14808-79-8			7782-41-4		
			Methods	RSKSOP-276/3			RSKSOP-276/3			RSKSOP-276/3		
			Unit	mg/L			mg/L			mg/L		
			MDL	0.136			0.103			0.056		
			QL	1.00			1.00			0.200		
QC Sample ID	Additional ID	Date Prepared	Date Analyzed	Data	True Value	% REC.	Data	True Value	% REC.	Data	True Value	% REC.
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
MB	RO water Blank	10/13/2010	10/13/2010	ND	-	-	ND	-	-	ND	-	-
SS	ERA # 46 Minerals	6/24/2010	10/13/2010	51.3	52.0	98.7	26.8	28.5	94.0	2.69	2.70	99.6
SS	ERA # 46 Minerals	6/24/2010	10/13/2010	52.6	52.0	101	27.6	28.5	96.8	2.74	2.70	101
SS	ERA # 46 Minerals	6/24/2010	10/13/2010	53.0	52.0	102	28.0	28.5	98.2	2.69	2.70	99.6
SS	ERA # 46 Minerals	6/24/2010	10/13/2010	52.7	52.0	101	27.6	28.5	96.8	2.75	2.70	102
SS	ERA # 46 Minerals	6/24/2010	10/13/2010	53.1	52.0	102	28.1	28.5	98.6	2.69	2.70	99.6
CCC	Calibration Check Standard	10/1/2010	10/13/2010	1.05	1.00	105	BQL (0.916)	1.00	91.6	0.210	0.200	105
CCC	Calibration Check Standard	10/1/2010	10/13/2010	5.14	5.00	103	5.05	5.00	101	1.04	1.00	104
CCC	Calibration Check Standard	10/1/2010	10/13/2010	25.3	25.0	101	25.2	25.0	101	5.07	5.00	101
CCC	Calibration Check Standard	10/1/2010	10/13/2010	1.02	1.00	102	BQL (0.935)	1.00	93.5	0.205	0.200	103
CCC	Calibration Check Standard	10/1/2010	10/13/2010	5.13	5.00	103	5.09	5.00	102	0.963	1.00	96.3
CCC	Calibration Check Standard	10/1/2010	10/13/2010	25.8	25.0	103	25.9	25.0	104	5.19	5.00	104
CCC	Calibration Check Standard	10/1/2010	10/13/2010	5.22	5.00	104	5.13	5.00	103	1.06	1.00	106
CCC	Calibration Check Standard	10/1/2010	10/13/2010	5.19	5.00	104	4.98	5.00	99.6	1.00	1.00	100
CCC	Calibration Check Standard	10/1/2010	10/13/2010	25.4	25.0	102	25.4	25.0	102	5.03	5.00	101
MS	EPAMW 01 Spike	10/13/2010	10/13/2010	32.7	23.3 (9.62)	97.7	* 27.7	* 19.0 (9.62)	90.4	3.53	1.55 (1.92)	103

Comments:

The data quality objective (DQO) for the accuracy of continuing calibration check standards is 90-110% recovery. The DQO for ERA # 46 is 84.8 - 116% for chloride, 79.6 - 118% for sulfate, and 83.0 - 117% for fluoride. The DQO for the recovery of matrix spikes is 80 - 120%. These objectives were met for the standards and spikes. The matrix spikes were prepared by adding 20 uL of a 250 / 50 mg/L mixed standard into 0.5 mL of sample yielding a spike concentration of 9.62 mg/L for chloride and sulfate and 1.92 mg/L for fluoride. The matrix spike recovery was calculated according to the equation: % Recovery = 100 x (Spiked sample concentration (DATA) - Native sample concentration)/Spike concentration. * The values for spike concentrations are calculated and reported without the dilution factors applied.

Notes:

1. **MB** - Method Blank. **CCC** - Continuing Calibration Check. A calibration standard analyzed within the batch of samples. **LCS** - Laboratory Control Spike. A laboratory blank spiked with analytes at known concentrations. **MS** - Matrix Spike. A field sample spiked with known concentrations of analytes. The field sample id is identified. The True Value column for matrix spikes list the unspiked native sample concentration along with the spike concentration in parentheses. **SS** - Samples obtained from the second sources are identified by their designated names. **DUP** - Field sample duplicate analysis. A sample selected by the lab analyst to analyze as a duplicate. It is reported in the sample result section. **%REC** - Percent Recovery. Calculated as the percentage of the results to the true values. It equals to % accuracy for CCC.